Inventor: Shervin PISHEVAR Page 1 of 16 Express Mail No.: EL762530603US Matter: FILED-Figs-Improving Application Performance Across a Communications Network.vsd

ARS Centralized Controller

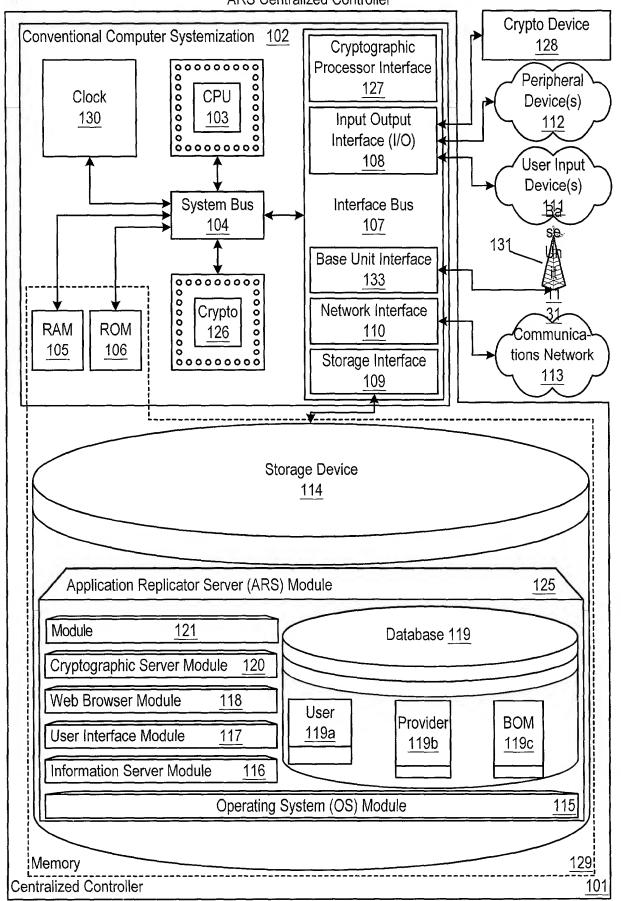


Figure 1 1/16

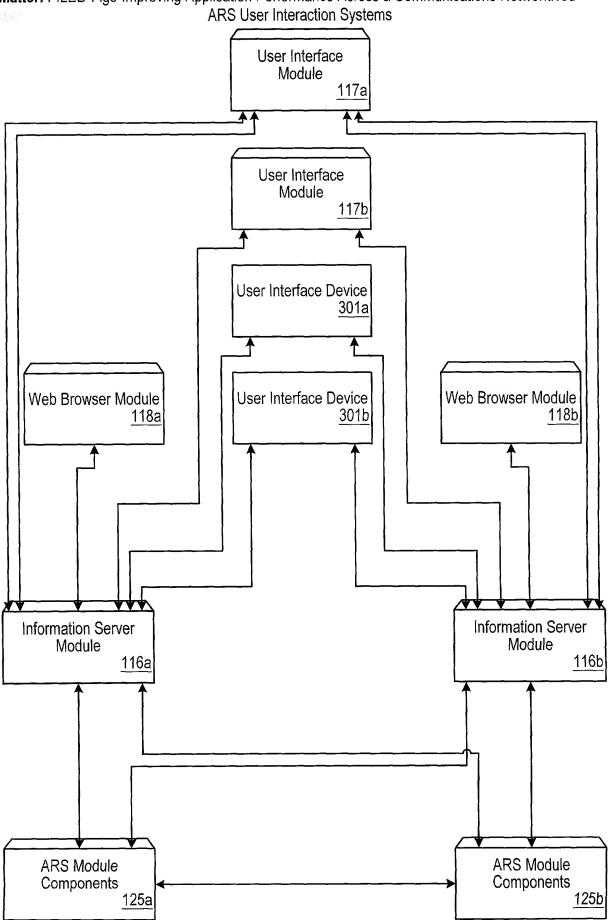
The second street

Page 2 **of** 16 **Inventor:** Shervin PISHEVAR Express Mail No.: EL762530603US Matter: FILED-Figs-Improving Application Performance Across a Communications Network.vsd Distributed Controller **Conventional Computer Conventional Computer** Conventional Computer Systemization 102 Systemization 102 Systemization 102 Convent System 114 114 114 User Interface Web Browser Information Server Module Module Module Inform 118 116 117 216 115 OS OS 115 115 OS 202a 201 203 201 201 Communications' User Interface Device Network 202b 113 **Conventional Computer** Conventional Computer Conventional Computer Systemization 102 Systemization 102 Systemization 102 114 114 114 Database 119e Database 119b Database 119a Provider Accesser 115 OS OS 115 OS 115 204b 204a 204e **Conventional Computer** Conventional Computer **Conventional Computer** Systemization 102 Systemization 102 Systemization 102 114 114 114 Cryptographic Server Module Individual ARS **ARS Modules** Modules 125 121 120 115 115 OS 115 OS OS 205 206 207 Figure 2 2/16

Figure 3

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Matter: FILED-Figs-Improving Application Performance Across a Communications Network.vsd



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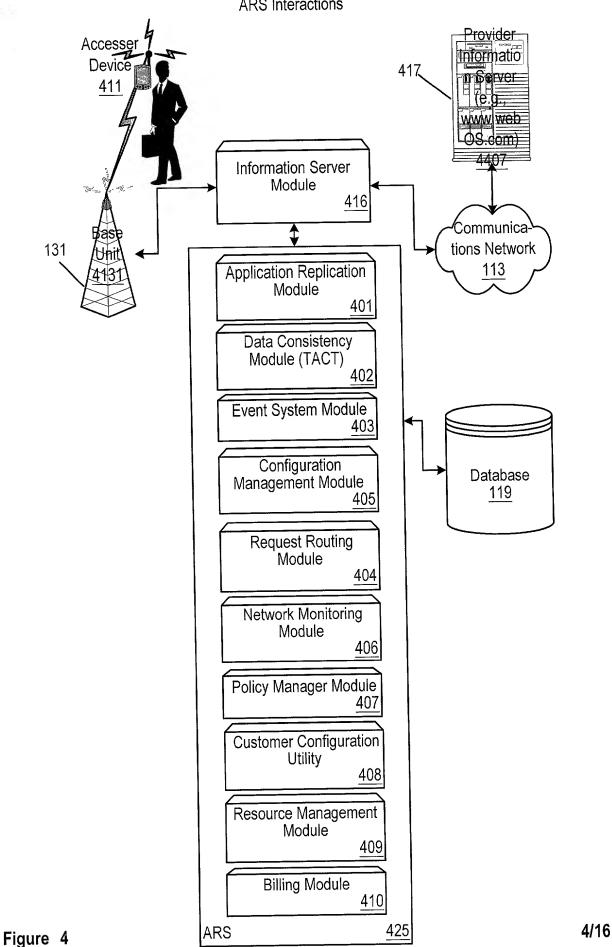
Inventor: Shervin PISHEVAR

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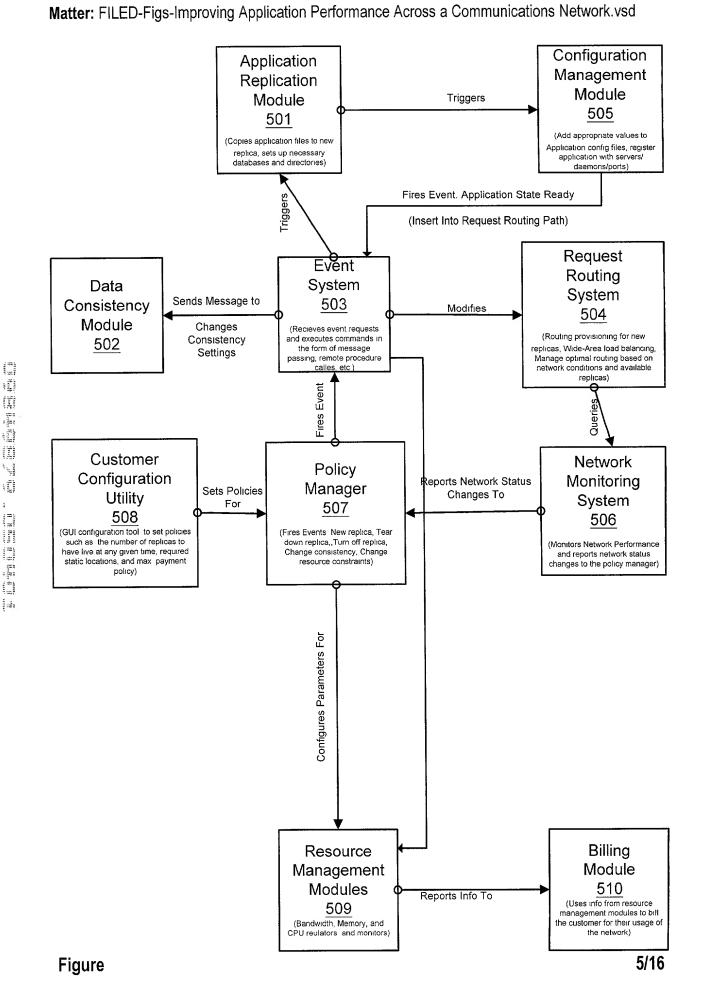
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ARS Interactions



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Express Mail No.: EL762530603US **Page** 6 **of** 16 Inventor: Shervin PISHEVAR Matter: FILED-Figs-Improving Application Performance Across a Communications Network.vsd Policy Manager: Application Resource Request Handler Model Node Policy Manager Obtain User Request (app. user, max payment) 601 Determine Fixed Resource Request Resource Usage Requirements (get app & data (TACT System, Original, Library, etc.) size, activity logs, e.g., df) 602 603 Obtain Results () 604 Parse Request (determines amount of CPU, size, load, peak times, locations of users, etc.) 605 Compare Parsed Request Boll Halls that to Current Settings for User 606 T. 1 2 1 Determine Action? (New Node, Kill Node, Off Node, On Node, Change Consistency, Change Constraints) 607 New AppNode 608 Delete AppNode 609 On 613 AppNode 610 Termination Event? AppNode 614 611 Change Consisten End cy/Priority 615 6/16 **Figure**

Inventor: Shervin PISHEVAR

Matter: FILED-Figs-Improving Application Performance Across a Communications Network.vsd New AppNode Replica Node (ARM) Policy Manager Determine Fixed Resource Sufficient Resources? 701 used load availability, size Requirements (get app & data etc. > required resources) size, e.g., df) 706 New N Node **Error Handling** Compare Parsed Request 708 to Resources Usage List 702 Sufficient Resources? App BOM Exists? used load availability, size, etc 709 required resources N Create Install Bill of Use BOM For Install Order Materials (BOM) **Error Handling** 710 711 704 Generate User Account If Allocate Space if Needed Request Resource (TACT Install BOM Needed System or Original) 712 713 705 Obtain Local Replacement Copy App Files per Install for Tokens In BOM (e.g., IP Successful Creation? BOM (applying special attributes) address, paths, etc.) 720 714 715 Reconfigure Files for Local Ν Report Completion Node 718 **Error Handling** 717 721 CMM 716 Return 722 To Requesting Node (and/or Policy Manager, Event System, Request Routing System, optional P2P messaging, etc.) 719 7/16 **Figure**

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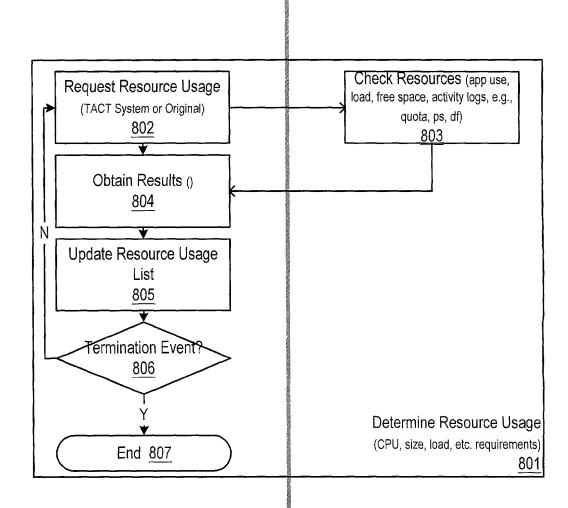
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ARS Resource List Builder



Node



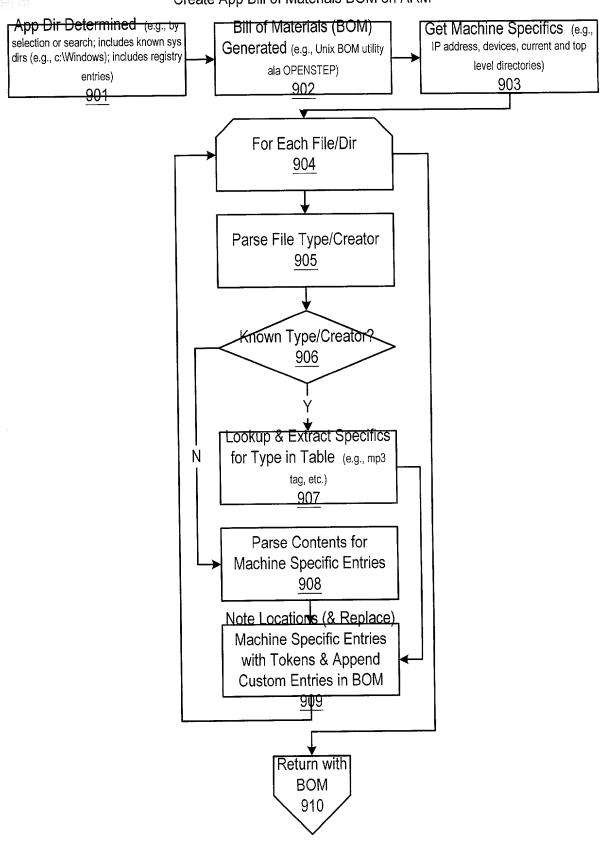
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Create App Bill of Materials BOM on ARM



Express Mail No.: EL762530603US Inventor: Shervin PISHEVAR Page 10 of 16 Matter: FILED-Figs-Improving Application Performance Across a Communications Network.vsd Delete AppNode on ARM 1001 Turn Off Running? 1003 1002 N Force TACT Update from Node to Propagate 1004 Report that Node is Unavailable for Updates (TACT, Resource Management) 1005 Safe for AppNode **Error Handling** Deletion? 1007 1006 Read BOM 1008 **Delete Files** 1009 **Error Handling** Deleted? 1011 1010 Report Unavailability of Data to TACT, RM, etc. (e.g.,

Figure 10/16

Event System) 1012

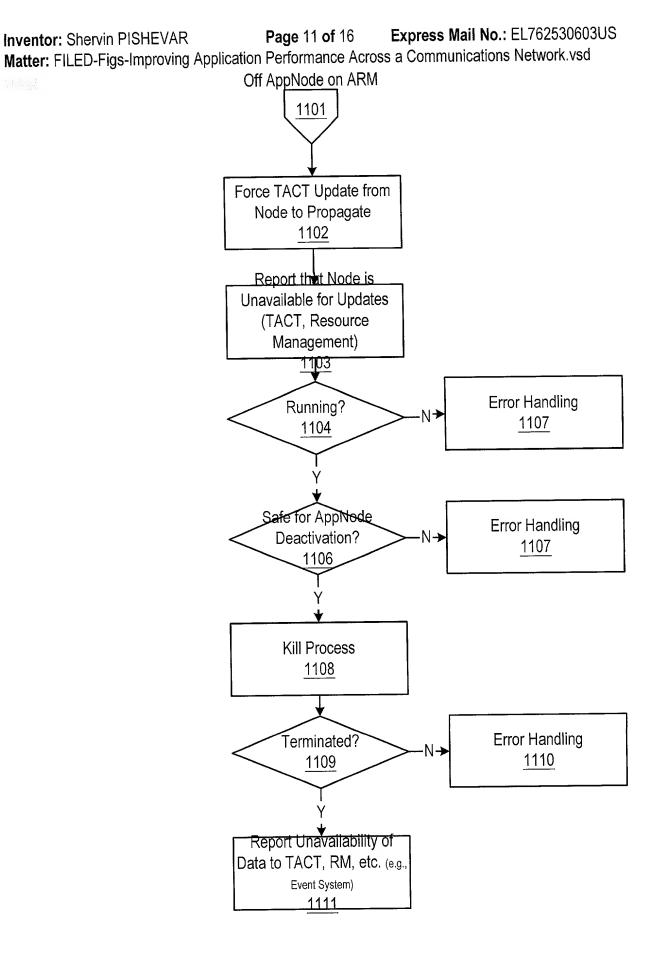


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Express Mail No.: EL762530603US Page 12 of 16 Inventor: Shervin PISHEVAR Matter: FILED-Figs-Improving Application Performance Across a Communications Network.vsd On AppNode on ARM 1201 Running? **Error Handling** 1203 1202 Safe for AppNode **Error Handling** Activation? 1206 1204 Node is Available/ **Error Handling** Desirable for App (may 1206 e done by NMS) **Obtain Priority Settings** (may be done by NMS) 1207 Instantiated Process (with priority settings, e.g. NICE) 1208 Instantiated? **Error Handling** 1210 1209 Report that Node is Available for Updates (TACT, Resource Management) 1211 Report Availability of Data to TACT, RM, etc. (e.g., Event System) 1212 12/16 **Figure**

Inventor: Shervin PISHEVAR Page 13 of 16 Express Mail No.: EL762530603US Matter: FILED-Figs-Improving Application Performance Across a Communications Network.vsd

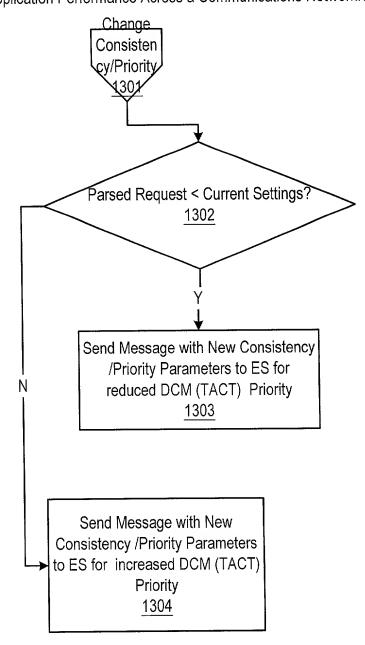
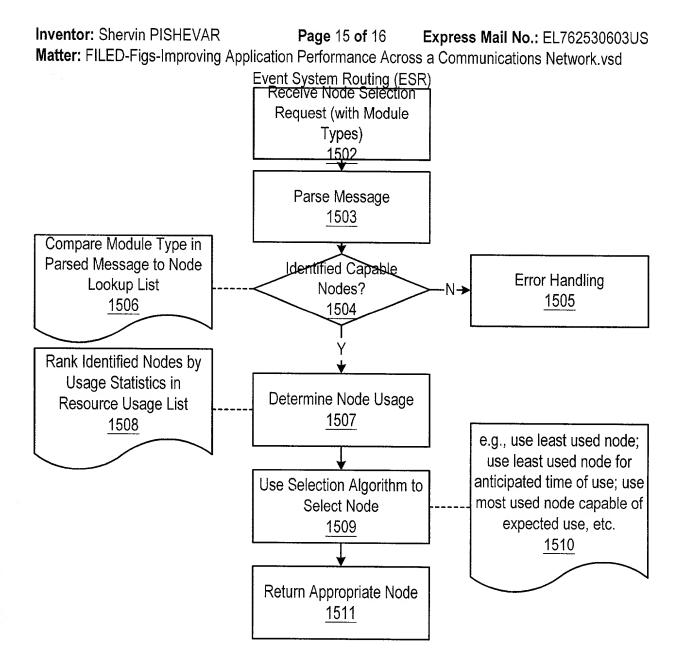


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Inventor: Shervin PISHEVAR Page 14 of 16 Express Mail No.: EL762530603US Matter: FILED-Figs-Improving Application Performance Across a Communications Network.vsd Event System (Message Passer) Receive Message 1401 Parse Message 1402 Message Target Message Target Identified? Required? 1405 1404 N N Search Resource Usage List for or Each Module Nodes Capable of Servicing Request **Error Handling** Type in Module 1406 1407 Collection Do (e.g., PM, ES, RRS, NMS, etc. 1408 Compare Command in Parsed Message to Command Module End Lookup List Loop 1410 Select Module Type for le Command in Module Type? Passing Request to RRS 1409 1411 Nodes Selected? Error Handling 1412 1413 ESR Request Node Selection Based on Selected Module Types (Use **Obtain Results** Algorithm to Pick Selected Nodes, e.g. 1415 least used node by examining usage entries for selected nodes) 1414 Determine Message Destination 1403 Sends Message to Appropriate Node 1416 **Figure** 14/16



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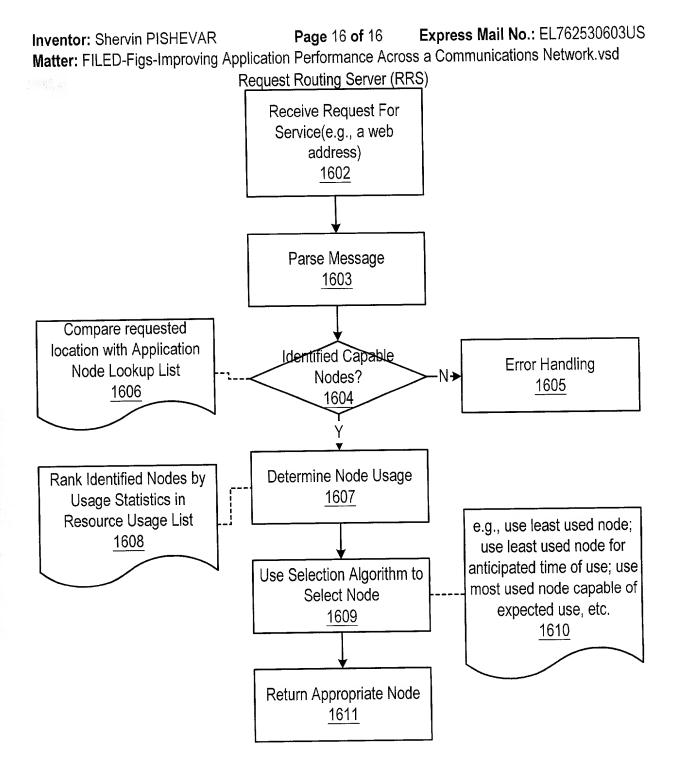


Figure 16/16